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10/563,373

01/04/2006

Isamu Nakao

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EXAMINER

MA, JAMESON Q

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

04/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/563,373 | Applicant(s) NAKAO ET AL. | |
| | Examiner JAMESON Q. MA | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 6-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060104</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of group I in the reply filed on 3/12/2009 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Claims 6-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/12/2009.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation 'the electrode' in claims 4 and 5 render the claims indefinite. It is unclear whether the limitations are directed to the electrode of the substrate or the external electrode.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Ootsubo et al. (US 2003/0087297).

Regarding claim 1, Ootsubo discloses a biochemical reaction apparatus comprising a means for holding a substrate having a reaction area for biochemical reaction (see fig. 5: glass substrate 31, which is equivalent to quartz glass as described in the instant specification) and an electrode formed in the reaction area (see fig. 5 and [0028]: metal layer 32 is a positive electrode); an external electrode disposed opposite to the electrode of the substrate (see fig. 4: negative electrode 13); and an electric field controlling means for generating an electric field between the electrode of the substrate and external electrode (voltage source 14).

Regarding claim 2, Ootsubo discloses the apparatus wherein the electrode of the substrate is a conductive layer formed as an underlying layer of the reaction area; and the external electrode has a plane parallel to the conductive layer

Regarding claim 3, Ootsubo discloses the apparatus wherein the electric field controlling means generates an AC electric field between the substrate electrode and external electrode (see [0037]).

Regarding claim 4, Ootsubo discloses the apparatus wherein the electrode is formed like a probe (negative electrode 13 is viewed as being 'formed like a probe').

7. Claims 1-2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Hashimoto (US 2001/0024788).

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Regarding claim 1, Hashimoto discloses a biochemical reaction apparatus comprising a means for holding a substrate having a reaction area for biochemical reaction (see [0024], Hashimoto discloses that quartz glass, polyethylene, and polystyrene can be used as substrate materials, which are the same materials disclosed by the instant specification) and an electrode formed in the reaction area (see fig. 2, composite electrode 8); an external electrode disposed opposite to the electrode of the substrate (see fig. 2: composite electrode 4); and an electric field controlling means for generating an electric field between the electrode of the substrate and external electrode (see [0064], a potential of 500 mV was applied, which would require an electric field controlling means).

Regarding claim 2, Hashimoto discloses the apparatus wherein the electrode of the substrate is a conductive layer formed as an underlying layer of the reaction area; and the external electrode has a plane parallel to the conductive layer

Regarding claim 4, Ootsubo discloses the apparatus wherein the electrode is formed like a probe (electrode 4 is viewed as being 'formed like a probe').

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 2001/0024788) in view of Phan (US 5,434,423).

Regarding claim 5, Hashimoto discloses all of the claim limitations as set forth above. Additionally, Hashimoto discloses that the electrodes can be made of a semiconductor material (see [0025]). Hashimoto further discloses that positive and negative electrodes are used (see fig. 2).

Hashimoto fails to disclose the apparatus wherein an electrode is formed from a semiconductor having acceptor or donor ions doped therein.

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Than teaches that it is well known that semiconductors are altered in electrical behavior by the introduction of dopants. Than further discloses that dopants generally come as either n-type or p-type.

It would have been obvious to one of ordinary skill in the art at the time of invention to select an n-type or p-type as the negative and positive electrodes in the apparatus of Hashimoto, because doing so would have resulted in nothing more than choosing from a finite number of identified, predictable solutions of semiconductors capable of acting as either a negative or positive electrode, as set forth by Hashimoto, with a reasonable expectation of success.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMESON Q. MA whose telephone number is (571)270-7063. The examiner can normally be reached on M-R 8:30 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571)272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JM

/Jill Warden/
Supervisory Patent Examiner, Art Unit 1797

April 7, 2009